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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,759	09/22/2003	Sean T. Crowley	AMKOR-022CB	1384
7663	7590	07/07/2005	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER 75 ENTERPRISE, SUITE 250 ALISO VIEJO, CA 92656			GRAYBILL, DAVID E	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,759

Applicant(s)

CROWLEY ET AL.

Examiner

David E. Graybill

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 21 pages.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

The amendment to the claims filed on 4-21-5 does not comply with the requirements of 37 CFR 1.121(c) because the status of claim 17 is incorrectly listed as withdrawn. To further clarify, applicant does not have the authority to withdraw claim 17 from prosecution in response to the restriction requirement. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (*e.g.*, additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing*. All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (*e.g.*, Claims 1-5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required*. All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, *i.e.*, without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is non-compliant, and in order to continue to afford applicant the benefit of compact prosecution, the requirement to comply with the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

Claims 10 and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4-21-5.

To further clarify, applicant's listing of the claims readable on the elected species is incorrect. The correct listing is claims 1-9, 11-16 and 18-20.

In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gaumet (5640306).

At column 2, lines 26-35, Gaumet discloses the following:

A semiconductor package comprising: a non-conductive film 2 defining opposed top and bottom film surfaces and including a plurality of openings 3, 4 disposed therein; a die pad 5 defining opposed top and bottom die pad surfaces, the top die pad surface being attached to the bottom film surface such that at least a portion of the top die pad surface is exposed within one of the openings; a plurality of leads 6 defining opposed top and bottom lead surfaces, the top lead surface of each of the leads being attached to the bottom film surface such that at least a portion of the top lead surface of

each of the leads is exposed within a respective one of the openings; a semiconductor die 7 attached to the exposed portion of the top die pad surface and electrically connected 8 to the exposed portion of the top lead surface of at least one of the leads; and a package body 9 at least partially covering the semiconductor die, the film, the die pad and the leads such that the bottom die pad surface, the bottom lead surface of each of the leads, and at least portions of the bottom film surface are exposed in the package body; wherein the top and bottom film surfaces, the top and bottom die pad surfaces, and the top and bottom lead surfaces of each of the leads are generally planar.

A semiconductor package, comprising: a non-conductive film including a plurality of openings disposed therein; a die pad attached to the film such that at least a portion of the die pad is exposed within one of the openings; a plurality of leads each of the leads being attached to the film such that at least a portion of each of the leads is exposed within a respective one of the openings; a semiconductor die attached to the die pad and electrically connected to at least one of the leads; and a package body at least partially covering the semiconductor die, the film, the die pad and the leads such that at least portions of the die pad and each of the leads are exposed in the package body.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-4, 11-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaumet as applied to claims 1 and 9, and further in combination with Kato (JP2100353).

As cited supra, Gaumet discloses a semiconductor package, comprising: a non-conductive film having a plurality of openings disposed therein; a die pad attached to the film such that at least a portion of the die pad is exposed within one of the openings; a plurality of leads attached to

the film and arranged in at least an inner row which circumvents the die pad, at least a portion of each of the leads being exposed in a respective one of the openings; a semiconductor die attached to the die pad and electrically connected to at least one of the leads; and a package body at least partially covering the semiconductor die, the film, the die pad, and the leads such that portions of the die pad and the leads are exposed in a common surface of the package body.

However, Gaumet does not appear to explicitly disclose inner and outer rows which each circumvent the die pad; wherein the leads are arranged in a first row which circumvents the die pad in spaced relation thereto, and a second row which circumvents the first row; wherein the leads of the second row are staggered relative to the leads of the first row; at least one ring circumventing the die pad and extending between the die pad and the leads of the first row; wherein the leads of the second row are offset relative to the leads of the first row; wherein the leads of the outer row are staggered relative to the leads of the inner row.

Nonetheless, in the English abstract and drawings, Kato discloses inner and outer rows (of leads 2) which each circumvent the "die pad"; wherein the leads 2 are arranged in a first row which circumvents the die pad in spaced relation thereto, and a second row which circumvents the first row;

wherein the leads of the second row are "staggered" relative to the leads of the first row; at least one ring (of leads 2) circumventing the die pad and extending between the die pad and the leads of the first row; wherein the leads of the second row are offset relative to the leads of the first row; wherein the leads of the outer row are staggered relative to the leads of the inner row. Moreover, it would have been obvious to combine this disclosure of Kato with the disclosure of Gaumet because it would provide an efficient lead layout.

In any case, In any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to arrange the leads of Gaumet as claimed because applicant has not disclosed that, in view of the applied prior art, the arrangement is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another arrangement. Moreover, it has been held that limitations directed to rearrangement of parts are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. In re Japikse 86 USPQ 70 (CCPA 1950); for example, reversal of parts was held to have been obvious. In re Gazda 104

USPQ 400 (CCPA 1955). Moreover, "simple adjustment of spatial orientation" has been held to be obvious. *Colt Industries Operating Corp. v. Index Werke, K.G. et al.*, 217 USPQ 1176 (DC 1982).

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaumet (5640306).

Gaumet is applied as it is applied to claims 1 and 9.

However, Gaumet does not appear to explicitly disclose wherein the bottom lead surface of each of the leads has a quadrangular configuration; wherein the exposed portion each of the leads has a quadrangular configuration.

Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose these particular dimensions because applicant has not disclosed that, in view of the applied prior art, the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another dimension. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, In

re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 1, 5, 9 and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hoppe (5637858).

At column 1, lines 37-39; column 3, line 56-65; and column 4, lines 56-63, Hoppe discloses the following:

A semiconductor package comprising: a non-conductive film 11 defining opposed top and bottom film surfaces and including a plurality of openings 15 disposed therein; a die pad 5 defining opposed top and bottom die pad surfaces, the top die pad surface being attached to the bottom film surface such that at least a portion of the top die pad surface is exposed within one of the openings; a plurality of leads 5 defining opposed top and bottom lead surfaces, the top lead surface of each of the leads being attached to the bottom film surface such that at least a portion of the top lead surface of each of the leads is exposed within a respective one of the openings; a semiconductor die 17 attached to the exposed portion of the top die pad surface and electrically connected 19 to the exposed portion of the top lead surface of at least one of the leads; and a package body 21 at least

partially covering the semiconductor die, the film, the die pad and the leads such that the bottom die pad surface, the bottom lead surface of each of the leads, and at least portions of the bottom film surface are exposed in the package body; wherein the bottom lead surface of each of the leads has a quadrangular configuration (illustrated in FIGS. 1 and 5).

A semiconductor package, comprising: a non-conductive film including a plurality of openings disposed therein; a die pad attached to the film such that at least a portion of the die pad is exposed within one of the openings; a plurality of leads each of the leads being attached to the film such that at least a portion of each of the leads is exposed within a respective one of the openings; a semiconductor die attached to the die pad and electrically connected to at least one of the leads; and a package body at least partially covering the semiconductor die, the film, the die pad and the leads such that at least portions of the die pad and each of the leads are exposed in the package body; wherein the exposed portion each of the leads has a quadrangular configuration.

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaumet as applied to claims 1 and 9, and further in combination with Hoppe (5637858).

Gaumet does not appear to explicitly disclose wherein the bottom lead surface of each of the leads has a quadrangular configuration; wherein the exposed portion each of the leads has a quadrangular configuration.

Nonetheless, as cited *supra*, Hoppe discloses these limitations. Furthermore, it would have been obvious to combine this disclosure of Hoppe with the disclosure of Gaumet because it would facilitate provision of the leads of Gaumet.

Claims 6, 7, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaumet or Hoppe as applied to claims 1 and 9, and further in combination with Houdeau (6095423).

As cited *supra*, both Gaumet and Hoppe disclose wherein the semiconductor die is electrically connected to the exposed portion of the top lead surface of each of the leads by a respective one of a plurality of bond wires, 8 and 19, respectively; wherein the semiconductor die is electrically connected to each of the leads by a respective one of a plurality of bond wires.

However, neither Gaumet or Hoppe appear to explicitly disclose wherein the exposed portion of the top lead surface of each of the leads has an immersion gold layer formed thereon.

Regardless, at column 1, lines 29-35 and 58-64; column 3, lines 9-12 and 18-22; column 5, lines 15-18; and column 8, lines 31-33, Houdeau discloses wherein the exposed portion of the top lead surface of each of the leads 3 has a gold layer formed thereon. In addition, it would have been obvious to combine this disclosure of Houdeau with the disclosures of Gaumet or Hoppe because it would provide standard bondability to the leads.

Also, although Gaumet, Hoppe and Houdeau do not appear to explicitly disclose the process limitation "immersion," the layer of the applied prior art inherently possesses any structural characteristics imparted by the process limitation. See *In re Fitzgerald, Sanders, and Bagheri*, 205 USPQ 594 (CCPA 1980).

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

For information on the status of this application applicant should check PAIR:

Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alternatively, applicant may contact the File Information Unit at (703) 308-2733.

Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

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Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.
The fax phone number for group 2800 is (703) 872-9306.

A handwritten signature in black ink, appearing to read 'David E. Graybill', is positioned above the printed name.

David E. Graybill
Primary Examiner
Art Unit 2822

D.G.
30-Jun-05